

## CSE1341 – Lab5 Assignment

Create the three new Square subclasses with the polymorphic *landOn* method in each of the four classes in the Square hierarchy. (See Part1 of the instructions for details.)

### NOTES:

Each program should include comments that explain what each block of code is doing. Additionally, the program should compile without errors, and run with the results described in the exercise. The following deductions will be made from each exercise if any of the following is incorrect or missing:

Proper formatting [5points]

Proper names for classes and variables [5points]

Comments [5point]

Program does not compile [10points]

Source code (javafile) missing [10points]

Executable (classfile) missing [10points]

Missing array where an array was required [5points]

Missing loop where a loop was required [5points]

Missing class from the design provided [10points]

Missing method from the design provided [5points]

Enhance the game you created in the previous assignment. In this version, there are four types of squares: regular squares, prize squares, penalty squares, and one last square. Players will start the game with \$1000 each and when they land on:

- Penalty Square: Deduct \$200 from player's account.
- Prize Square: Add \$100 to player's account
- Last Square: Add \$300 to player's account
- Square: Nothing happens



The player who lands on the last square will cause the game to end, but that player may not be the winner. The winner will be the player with the most money when the game ends.

Make a copy of your completed previous assignment solution and make the following changes:

- Use inheritance to create the four square types described above. Each will have a polymorphic *landOn* method. The player will pass itself (*this*) to the *landOn* method, and the Square will adjust the player's account.
- In the Board's constructor, use File I/O to read in the names and types of each of the squares. Use this information to create the Squares using the corresponding Square type and put all the squares in the Board's ArrayList as you did in the previous assignment.



# DALL OPOLY

SCOREBOARD	
	\$1000
	\$1000



**Reunion Tower**

Dealey Plaza

Design District

Victory Park

West End

Perot Museum

Downtown

Klyde Warren Park

Arts District

Deep Ellum

Fair Park

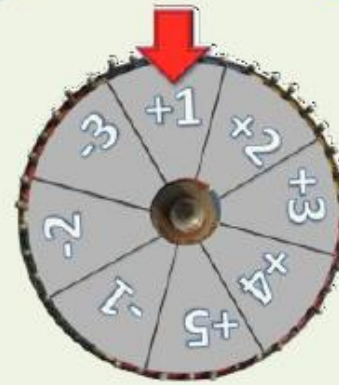
West Village

Katy Trail

North Park Mall

White Rock Lake

Bush Library

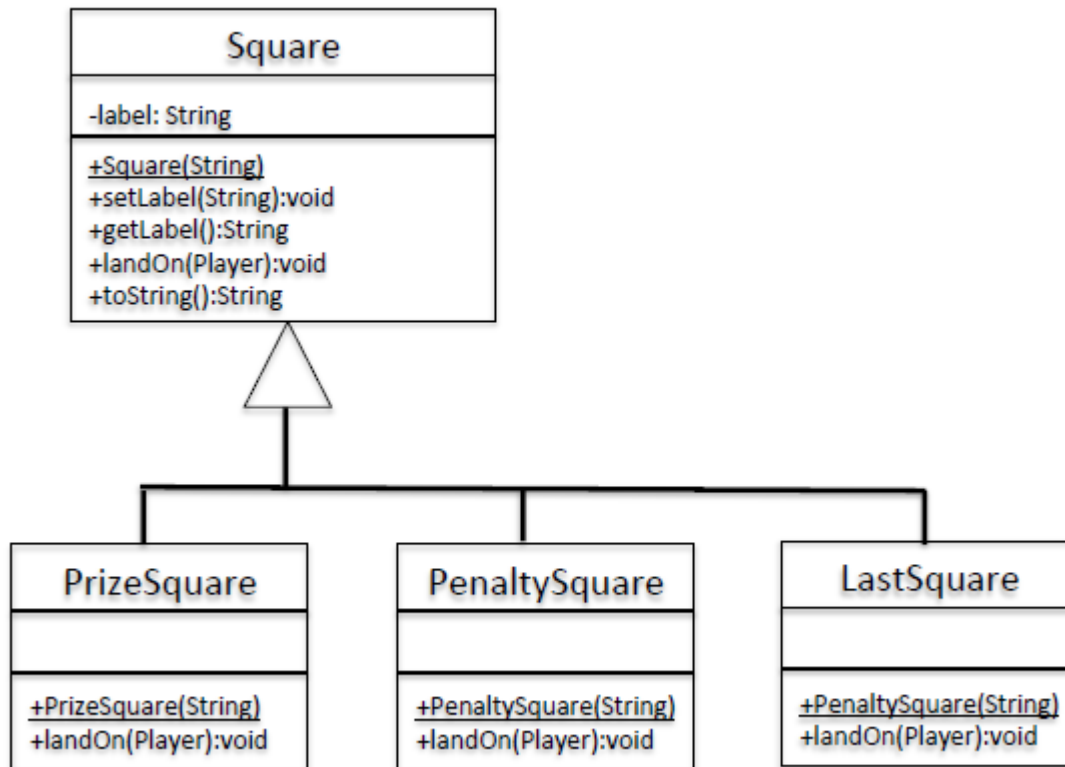


**SMU**

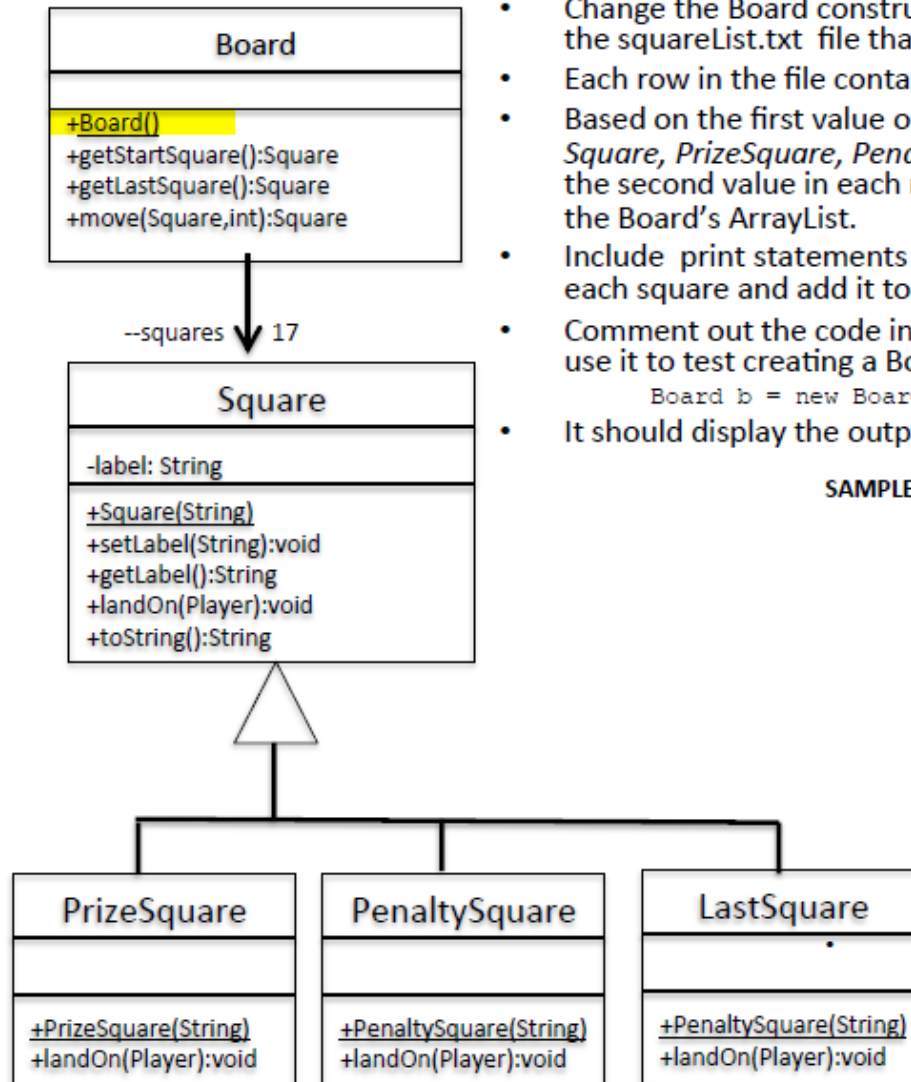
KEY	
n/a	
-200	
+100	
+300	

# Part1 – Square Hierarchy [20pts]

- Add three subclasses under Square named Prize Square, Penalty Square and Last Square.



# Part 2 – Board Changes [40 points]



- Change the Board constructor to read in the list of square types and names from the `squareList.txt` file that was provided to you.
- Each row in the file contains information needed to create one Square.
- Based on the first value on each row in the data file, create an instance of *Square*, *PrizeSquare*, *PenaltySquare* or *LastSquare*, and assign its name based on the second value in each row of the data file. Add all the Squares you create to the Board's ArrayList.
- Include print statements that print each square type and name as you create each square and add it to the ArrayList.
- Comment out the code in your GameLauncher's main method and temporarily use it to test creating a Board:  

```
Board b = new Board();
```
- It should display the output shown below:

## SAMPLE OUTPUT:

```
Created a Square with the name Reunion Tower
Created a Square with the name Dealey Plaza
Created a Square with the name Design District
Created a PrizeSquare with the name Victory Park
Created a Square with the name West End
Created a PenaltySquare with the name Perot Science Museum
Created a Square with the name Downtown
Created a PrizeSquare with the name Klyde Warren Park
Created a Square with the name Arts District
Created a PenaltySquare with the name Deep Ellum
Created a PrizeSquare with the name Fair Park
Created a Square with the name West Village
Created a PrizeSquare with the name Katy Trail
Created a PenaltySquare with the name North Park Mall
Created a PrizeSquare with the name White Rock Lake
Created a Square with the name Bush Library
Created a LastSquare with the name SMU
```

# Part3 – Player Changes [15pts]

Player
-name : String -money : int
+Player(String,Square) +getName():String +setName(String):void +getMoney():int +setMoney(int):void +changeMoney(int):void +getCurrentSquare():Square +setCurrentSquare(Square):void +takeTurn(Spinner,Board):void +toString():String

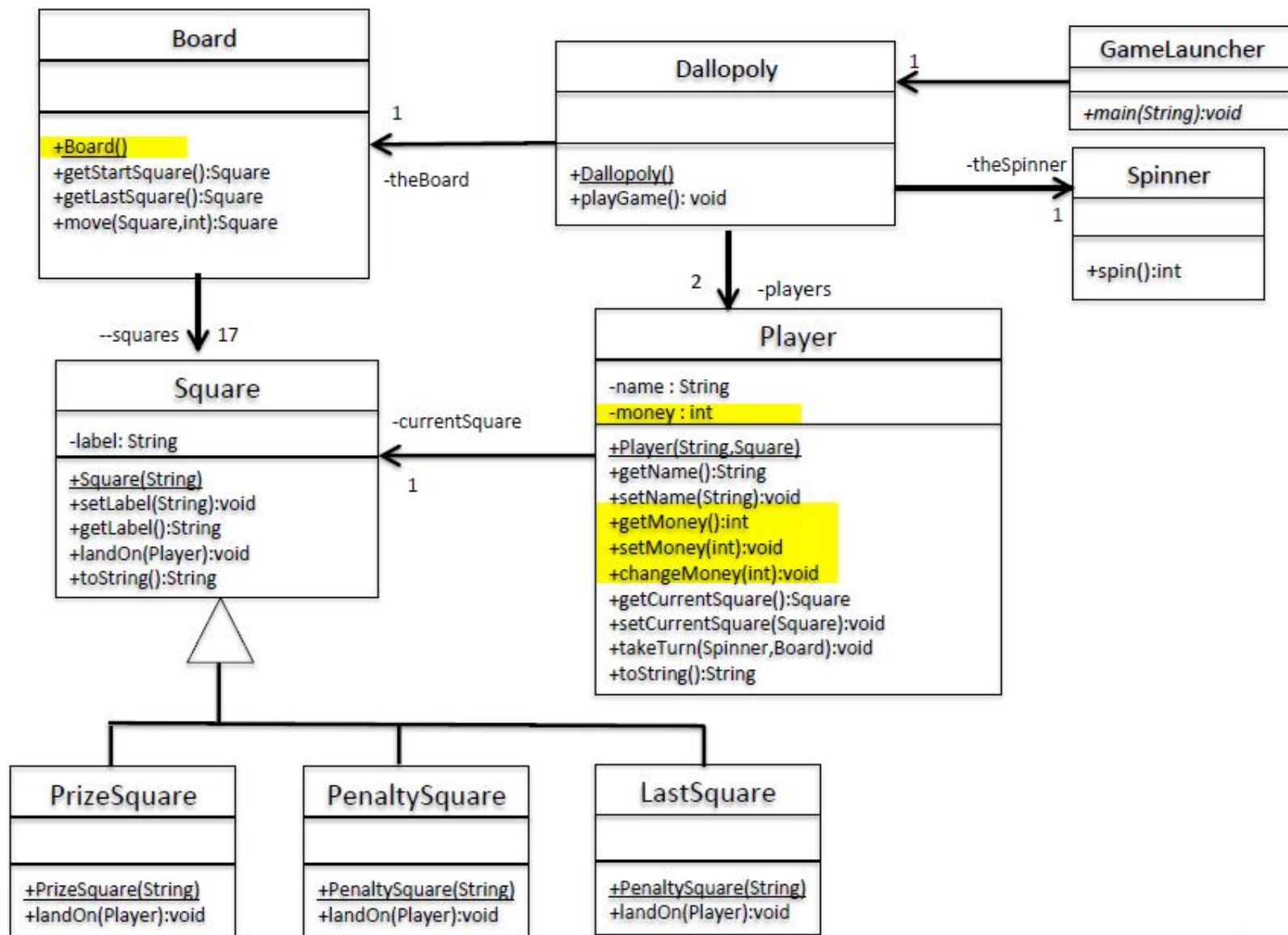
- Add a *money* attribute to *Player* and create a getter and setter for this attribute.
- Add code to the constructor to set the initial value of *money* to 1000.
- Add a *changeMoney* method to *Player* that accepts a positive or negative number. The *Player's* money amount will be adjusted up or down based on this value.
  - The *changeMoney* message will be sent to the *Player* by one of the *Square* objects in its *landOn* method.

## Part4 – *playGame* Changes [15pts]

Dallopoly
+Dallopoly() +playGame(): void

- Change the logic in the *playGame* method in the *Dallopoly* class.
  - Play still ends when one of the players reaches the last Square (the SMU square) which should now be an instance of LastSquare.
  - In this version, however, the Player who reaches the last Square is not necessarily the winner.
  - When one of the Player's reaches the last square, ask each Player for the value of its *money* attribute (use the *getter*) and display the name of the winning player. If both Players have the same amount, report that the game ended in a tie.







## Sample Output:

➤ java GameLauncher

Starting the game...

Horse has \$1000 is on Reunion Tower square

Robot has \$1000 is on Reunion Tower square

Horse spun 5 Horse has \$800 is on Perot Science Museum square

Robot spun 3 Robot has \$1100 is on Victory Park square

Horse spun 1 Horse has \$800 is on Downtown square

Robot spun 1 Robot has \$1100 is on West End square

Horse spun -2 Horse has \$800 is on West End square

Robot spun -1 Robot has \$1200 is on Victory Park square

Horse spun -1 Horse has \$900 is on Victory Park square

Robot spun 4 Robot has \$1300 is on Klyde Warren Park square

Horse spun 4 Horse has \$1000 is on Klyde Warren Park square

Robot spun -3 Robot has \$1300 is on West End square

Horse spun 1 Horse has \$1000 is on Arts District square

Robot spun 4 Robot has \$1300 is on Arts District square

Horse spun 3 Horse has \$1000 is on West Village square

Robot spun -1 Robot has \$1400 is on Klyde Warren Park square

Horse spun 4 Horse has \$1000 is on Bush Library square

Robot spun 5 Robot has \$1500 is on Katy Trail square

Horse spun 4 Horse has \$1000 is on Bush Library square

Robot spun 5 Robot has \$1600 is on Katy Trail square

Horse spun 4 Horse has \$1000 is on Bush Library square

Robot spun 3 Robot has \$1600 is on Bush Library square

Horse spun 1 Horse has \$1300 is on SMU square

GAME OVER!!! HORSE Landed on SMU Square

THE WINNER IS ROBOT